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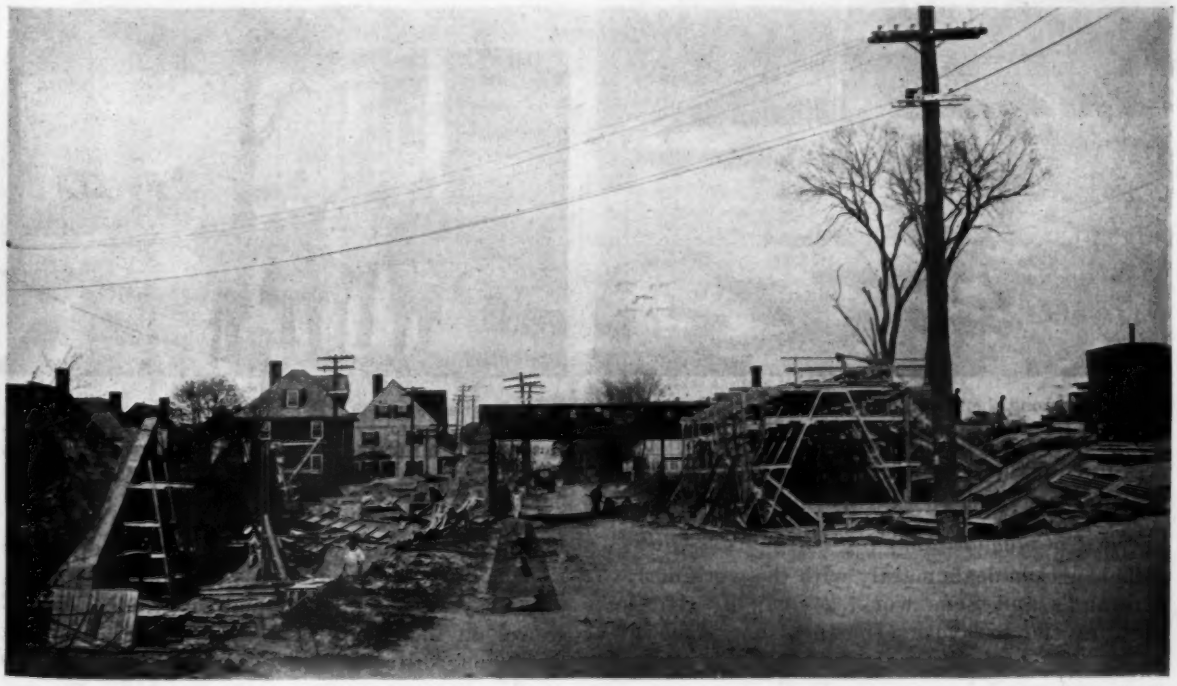
The Boston Southern Artery

This Work Involves the Moving of Some 200,000 Cubic Yards of Earth, the Building of a Forty-Foot Pavement and the Moving of Countless Buildings.

EVER since the automobile era arrived the city fathers and state parents alike have had traffic congestion of a newer sort to deal with. The coming of the automobile has changed things enormously, as proven by the fact that Boston has spent millions of dollars to relieve this resultant congestion. It used to be a favorite jibe to the Bostonians to ask for a compass to find the way about. But the new Cambridge Street, the new Tremont Street, the new Stuart Street, the abolition of buildings in Dock Square, has surely changed this.

The relieving of congestion downtown, however, just made it easier for traffic to get away, and consequently the inadequate outside arteries became choked. This led to the idea of a southern and northern artery. Quite a bit of opposition arose because of the amount of money involved, but finally both propositions went through, and are now in process of construction.

The Southern Artery is really an extension of the Parkway System to a point beyond Quincy, a distance of about six miles. It involves the building of a forty-foot pavement, the moving of countless buildings, and the moving of some two hundred thousand yards of earth. The total cost of the project is expected to reach over a million dollars. The work is expected to be finished by fall,



Rebuilding a Railroad Bridge. This bridge, 40 feet long, was extended to 80 feet in length.

not quite in time for the heavy summer resort travel.

The job has been let in three sections; J. C. Coleman and Sons Co. has the first, starting at Morton Street and Blue Hill Avenue and extending to the Neponset River; Paul Caputo has the second, extending from Merrymount Park in Quincy to a point about a mile beyond Quincy Square; E. C. Sargent has the third section of about a mile in extent, completing the loop around Quincy.

In Among the Trees, Busy with Winter Work.

All three contractors have made excellent progress during the past winter, having completed to date most of the heavy excavation.

J. C. Coleman Company Fifty Years Old

This article deals mainly with the work of J. C. Coleman's and Sons work, a company that has been in the excavation business for some fifty years. The company was organized by J. C. Coleman, and was taken over by D. E. Coleman upon the death of the former. As an indicator of the progressiveness of this organization, it is interesting to note that it was the first in Boston to own a steam shovel, and the first to own a machine mounted on caterpillars.

Looking Back Toward the Finished Part of the Cut.

As before mentioned, the J. C. Coleman and Sons Company's work on the Boston Southern Artery starts at Morton Street and Blue Hill Avenue and extends to the Neponset River. This section is about three miles in length, and involves 80,000 yards of ordinary excavation, 10,000 yards of ledge excavation and 50,000 yards of gravel borrow excavation, and in all will amount to about $366,000. In addition to the construction work, there is also a great deal of wrecking work. Many buildings have to be moved or torn down. In one place on the Coleman section a forty-foot girder railroad bridge was taken out, and replaced with a similar bridge eighty feet in length.

State Engineers on the Job. Left to right: R. E. Allen, inspector; J. F. Donahue, in charge of line and grade; M. E. Healy, in charge of right-of-way and drainage; Lewis Fritz, resident engineer, in general charge of all work.

Four Shovels at Work on Coleman Section

For digging equipment the Coleman organization has placed two Bucyrus 31-B steam shovels, one Bucyrus 20-B steam shovel and one Erie B-2 shovel on the job. These machines are working one 9-hour shift per day. The two Bucyrus 31-B's are handling about 800 yards per shift. The ma-

terials handled consist to a large extent of extremely tough Roxbury hard pan.

There are about fifty trucks taking care of the hauling. These include both Mack and Sterling. The spoil is being used to fill across a salt water marsh which is included in the relocation. Gravel for the sub-base of the road is obtained in Braintree, where it is taken out by a shovel and hauled by truck four miles to the job.

Rollers and graders are being put to work to put a finishing touch to the grade work.

The operators and firemen of the shovels on this section are as follows: Bucyrus 31-B — Ira Carles and Walter Kennedy; Bucyrus 31-B — Frank Wilson and George Wilson; Bucyrus 20-B — Phil Diater and Jerry Collins; Erie B-2 — Fred Cleaves and Bill Clancy.

The section being handled by Paul Caputo is approximately two miles long and will cost $225,000. The third section, handled by E. C. Sargent, is about 1¾ miles in length and is costing $40,000.

Machines Working Side by Side in a Sixteen-Foot Cut.

The Fast-Moving Britons

The United States can boast a greater railroad mileage than any other country in the world, in fact the total mileage of track in the United States is 251,176, while that in all other countries combined is only 740,914. The United States has 33.9 per cent of the total. England, however, can boast of higher speed non-stop runs which are faster and longer than any in this country. The Great Western particularly has been noted for the speed of its trains.

As long ago as 1848 it had trains scheduled at nearly 57 miles an hour. Prior to 1880 a number of famous trains, such as the Flying Dutchman, were run between Paddington Station, London, and Exeter, a distance of 193 miles. The Flying Dutchman made this journey each way in 4½ hours with five intermediate stops. The Zulu, put on in 1880, made the same run in 4 hours, 15 minutes. These schedules called for average speeds of 43 and 45.4 miles an hour respectively.

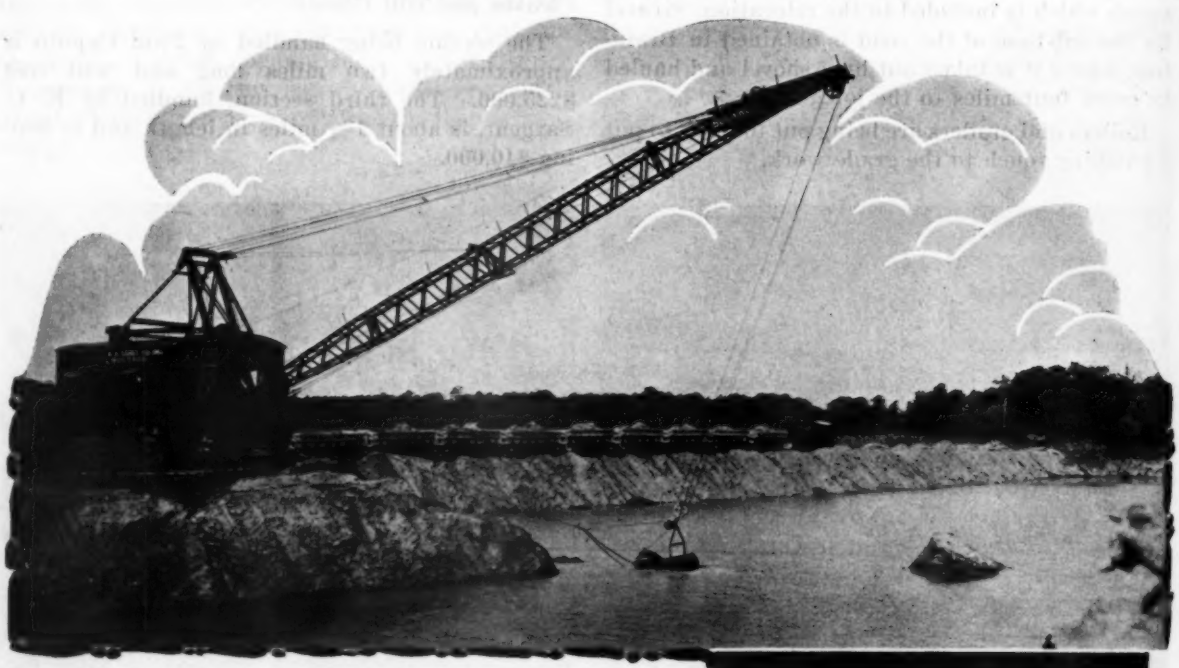
More than 20 years ago a non-stop train was put on between Paddington Station and Plymouth, 245½ miles. This was then, and still is, the longest non-stop run in the world by daily or regular trains. At that time the schedule between termini was 4 hours 25 minutes, which called for a constant speed of 55.6 miles an hour. The speeds at various points, however, considerably exceeded the average.

The Great Western has 12 other runs, on some of which as many as four trains are in service, which are faster than that on the Paddington-Plymouth line. For instance, between Swindon and London, 77¼ miles, the run is made regularly in 75 minutes, giving an average speed of 61.8 miles an hour. This is the fastest schedule, start-to-stop run in the British Isles. The Paddington-Bath run, 106¾ miles, is made in 105 minutes, giving an average speed of 61.1 miles an hour, only slightly less than the run to Swindon.

What is said to be the fastest run on record was made by a special train moving between Paddington station and Plymouth, when 102.3 miles an hour was recorded. This speed was recorded by instruments placed in the train for that purpose. The total time occupied between termini was 3 hours, 46 minutes, 28 seconds. The speed average, including stops, was 65.49 miles, while, deducting the stops, the average speed of running was 66.39 miles. One-quarter mile was run in 8.8 seconds, or at the rate of 102.3 miles an hour. The shortest time for any half-mile was 18 seconds, equal to 100 miles an hour.

Excavating Marl for the Virginia Portland Cement Corporation

The W. F. Carey Company Uses a 4-yard Electric Dragline for Tracting Marl for Cement Making Purposes. Excavation Carried On in 35 Feet of Water.



Above: A View at the Marl Field, Showing the Dragline Taking Out the Marl and Loading the Train of Cars Standing at the Side.
Right: An Unusual View of the Dragline, Taken from the Point of the Boom.

DOWN near Chuckatuck, Virginia, in the extreme southeastern corner of the state, the W. F. Carey Company is busy digging marl for the Virginia Portland Cement Corporation. The W. F. Carey Co., Inc., engineers and contractors, maintain their home offices in New York City, and the work described in this article is only one of the many contracts they are now carrying out.

The Virginia Portland Cement Corporation is a new organization, operating a new plant, a subsidiary of the International Cement Corporation. The plant is located near Norfolk, and raw material is towed from the loading docks to the plant in barges, a distance of thirteen miles. This plant has been of considerable interest to the cement industry, due to the research work that was done in connection with the raw materials and in the perfection of methods for treating them. About a year was devoted to these exhaustive studies, and then in another year, late in 1925, the first kiln was put into operation.

Prospecting the Marl Field

Marl is a formation of shells, which, as far as science can determine, was laid down during the Cretaceous age, between 6,000,000 and 36,000,000 years ago. These shells come in all sizes, and among them are found clam, mussel, and many other types which are not now found in shell life. Prospecting was carried on by the use of three-inch iron

pipes, which were slowly driven through the shell deposit, the location of the drill holes being laid out as the deposit was explored. These drill holes were carried to a maximum depth of about 60 feet below the ground surface. All drill holes, however, were not carried to this depth. The samples taken were subjected to careful chemical analysis to determine the character of the deposit. The deposit was found to be quite uniform in depth, lying in beds averaging from 40 to 50 feet in thickness. It is covered by an overburden of earth and loose sand averaging from three to eight feet in depth.

The company owns about 2000 acres of the marl deposit at Chuckatuck, on the Nansemond River, a navigable river which serves as a means of transporting the material from the washing plant at the deposit down to the plant at Norfolk. The marl is of excellent quality and high in lime content, but intermingled with it are deletereous foreign substances, and solving the problem of separating this foreign material from the marl really paved the way for successful manufacture of a high quality cement.

Excavating Equipment

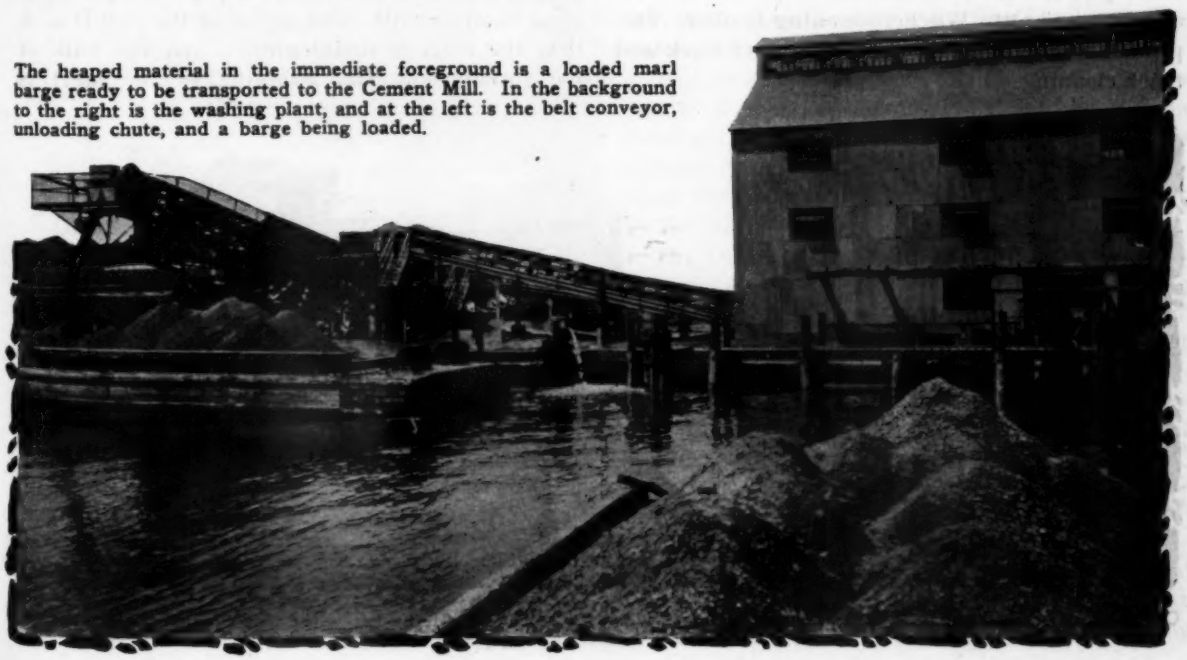
When the W. F. Carey Company contracted to extract the marl they purchased a Bucyrus 175-B electric dragline for the purpose. This machine is equipped with a 143-foot boom and a 4-yard bucket. When the machine was received it had to be unloaded at Norfolk and placed on scows, which were then taken up the James and Nansemond Rivers a distance of thirty miles, and then up Cedar Creek a distance of three-quarters of a mile. The scows containing the equipment had to be tied up at the mouth of Cedar Creek until favorable tides made navigation possible. At the unloading point, a derrick was erected, a dock built, and a temporary track laid, leading from the dock site to the permanent track, a distance of one-quarter of a mile.

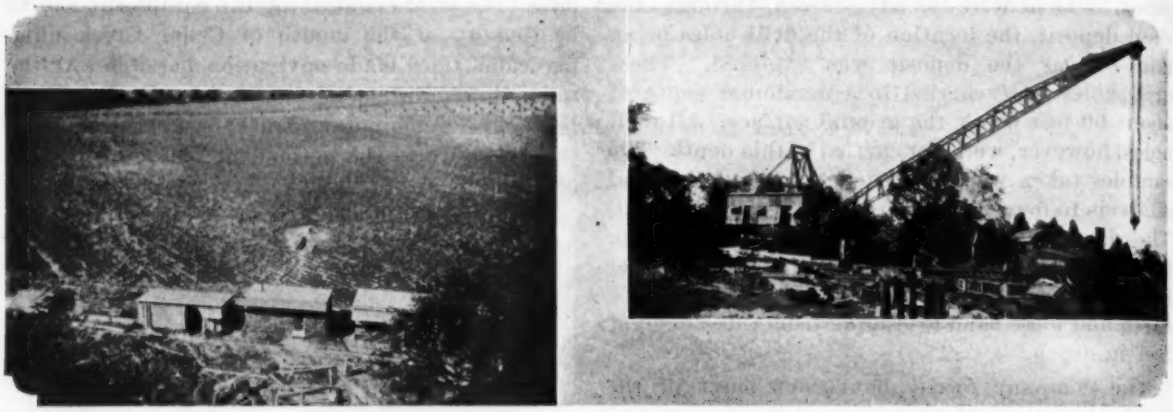
Three of the Bungalows on the Property, Occupied by M. F. Carey, Superintendent, M. J. Kuhlman, Dragline Operator, and J. Bateman, Locomotive Engineer.

Extracting the Marl

The machine is now working along stripping off the overburden, casting it to one side and then taking out the marl all in one cut. On the first cut the overburden was cast to one side on the surface level, but after the cover had been stripped off and the marl extracted to the end of the first cut, the dragline was dead-headed back to the beginning of a new cut, and the overburden from the new cut cast into the channel from which the marl had been removed. And so the procedure is repeated.

The heaped material in the immediate foreground is a loaded marl barge ready to be transported to the Cement Mill. In the background to the right is the washing plant, and at the left is the belt conveyor, unloading chute, and a barge being loaded.





Left: Giving some idea of the surrounding country and crops, this picture was taken from the boom point of the dragline, looking out over a peanut field.

Right: The dragline is being brought into the scene of operations on temporary tracks, after having been brought up on scows on the James and Nansemond Rivers for a distance of thirty miles, and then up Cedar Creek a distance of three-quarters of a mile.

The cuts are made 160 feet in width and about 1000 feet in length. At the present time, excavation is being carried on in about 35 feet of water. In some of the deposits, however, it is expected that most of the excavation will be above the water line.

Current for the electric dragline is obtained from the Virginia Electric and Power Company, a high tension line having been erected and a connection made with the main power line at Suffolk, a distance of about eight miles from the site of operations. The machine is working one 10-hour shift per day, and handling an average of 1000 cubic yards per shift, with a maximum of 1400 cubic yards. M. J. Kullman is operator of the dragline and Otto Wucherpfemning is oiler. Two pitmen are required for general ground work and track cleaning.

Haulage System

As the machine takes out the marl, it dumps into cars, which take the material to the edge of the river where the washing plant is located. For haulage purposes, two trains with ten Western 12-yard air dump cars to a train are used. These are pulled by a Baldwin 60-ton locomotive and a Porter 50-ton locomotive. A single-track system with a pass track is used. In this way one train is being loaded while the other is taken to the washing plant and dumped.

The Washing Plant

The loaded cars of marl arrive at the washing plant on a tipple, and are side dumped into a steel hopper, underneath which is a pan conveyor feeding a hammer mill. The action of the mill is such that the marl is disintegrated, and the bulk of the foreign material adhering to the marl is

(Continued on page 297)

Cars, loaded with marl, in position to dump at the pan conveyor building. At the left is the belt conveyor which carries the marl to the washing plant.

The Diesel Shovel and the Building of Logging Roads

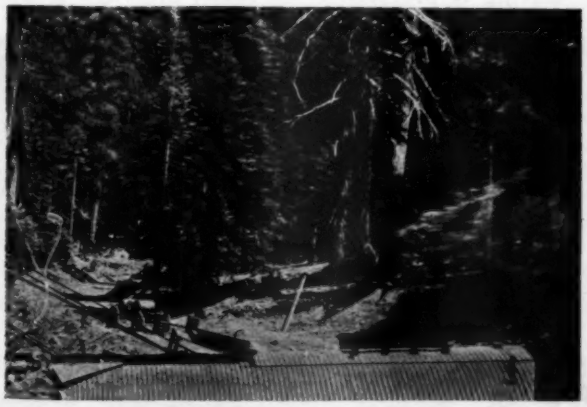
The Red River Lumber Company Operates Five Shovels in Building Their Logging Roads. A Description of the Operations of the Last Machine Installed, a 1¾-Yard Diesel Shovel.

IT is not possible to say that the Diesel shovel is better in every respect than the steam shovel, nor to say that the steam shovel is better than the Diesel shovel, as the choice is mainly a question of the conditions under which the machine is to work. And yet, the use of the Diesel engine as a source of power has met with such success that the shovel user has come, during the past several years, to consider the Diesel shovel as one of his standard tools.

We have here the description of the work of a Diesel shovel out in the logging country, working along with steam machines in the same type of work. These machines are owned by the Red River Lumber Company of Westwood, California. Their properties in California consist of lumber yards, mills, factories, and approximately 880,000 acres of land, most of which is timber.

Five Shovels on the Job

The shovel work here is the building of logging roads. They have five machines carrying out this work, namely a Bucyrus 50-B Diesel shovel, two Bucyrus 30-B steam shovels and two Marion ¾-yard steam shovels. The Diesel machine was in-



Looking Over the Top of the Shovel, Down Through the Lane of Trees, at the Finished Roadbed.

stalled in April, 1926, while the steam machines have been in service from two to six years.

Logging Spurs Up to Twelve Miles in Length

The logging roads are laid out with regard to the timber being taken out with donkey or wheel tractors. The main line is shoved ahead as fast as logging necessitates. The main logging spurs are up to 10 or 12 miles in length, and the short spurs are made approximately one mile in length. These are taken up as soon as the timber is logged. The main line spurs are built with curves not exceeding ten degrees, and the logging spurs for shay work are built with curves not exceeding 18 degrees. The main line grades are not over 1.85%, and the spurs have a 5% maximum. All the tracks are ballasted.

Cuts from Five to Forty-five Feet Deep in Material About Thirty-five Per Cent Lava Rock

The material handled is of a lava formation, averaging about thirty per cent lava rock. This

Giving some idea of the material handled. Note the roots in the soil. In many places rock was encountered.

material requires a little blasting in places, Hercules powder being used.

The cuts are made at a depth ranging from 5 feet to 45 feet, and are made 18 feet wide to conform with the requirements for the road. A few fills are made, and the material for these is hauled from the machine by trucks and wagons. Most of the material, however, is overcast.

The Diesel shovel works two 10-hour shifts per day and handles about 500 yards per shift. The amount of fuel oil burned per shift averages about 24 gallons. The oil is shipped into the plant in 12,000-gallon tanks and transferred to a large 30,000-gallon oil tank. It is then transferred, as needed, from the tank to barrels, and hauled to the machine by train and truck.

About 8000 Cubic Yards of Excavation Involved to the Mile of Road

The following is a collection of data gathered by an engineer of the Red River Lumber Company for presentation at the 17th Pacific Logging

Congress. The report was not read but was ordered published in the record.

"This shovel has been in operation grading logging spurs since about the middle of April, 1926, and between then and the middle of September, 1926, it moved approximately one hundred thousand cubic yards of material. This might seem to be a small yardage for the time of operation, which would be a fact if the materials to be handled were free of rock and the work was heavy enough that the frequent moving of the shovel for any long distances was not necessary. The materials this shovel has been moving would average thirty per cent rock, of lava formation, and the quantities amount to approximately eight thousand yards to the mile.

Operating Cost of Diesel Reported as One-third That of Steam

"The following figures will give what we have found to be the cost of a ten-hour shift in operating a steam shovel of 1-cubic-yard capacity and the 1¾-yard Diesel:

STEAM SHOVEL — ONE CUBIC YARD

Fuel and Oil (Coal)	$22.00
Engineer	10.00
Fireman	5.70
Night Watch	5.70
Pit Men (2)	8.50
Teamster	4.50
Pipe Lines	10.00
Depreciation on pipe, pumps, etc.	2.00
	$68.40

DIESEL SHOVEL — 1¾ CUBIC YARDS

Fuel and Oil	$ 3.00
Engineer	10.00
Oiler	6.00
	$19.00

"You will note we have a nightwatch, pit men, etc., on the steam rig and not on the Diesel. The night man has to have steam up for crew and keep shovel from freezing. Two pitmen rustle coal, change pipe leads, etc. One extra crew lays pipe across country at all times to keep one spur ahead of shovel. With the Diesel we do not need any more than the two men. We have a truck to bring in the oil at times convenient, and as we use about twenty-four gallons of Diesel fuel oil per shift our cost on this, laid down on the job at the shovel, is eight cents per gallon, or a fuel cost of $1.92 per shift. Maintenance costs on the two shovels is about equal. It might seem as though this shovel would be too large for the class of work we are doing, but I have found that we can move larger boulders and stumps, saving on powder, and the moving is practically the same, although it was

This is the Diesel Machine Upon Which Figures Were Compiled for the Report Printed in this Article.

necessary to widen the deck of our shovel car to accommodate the Diesel.

"In flexibility, crowding, etc., there is no question but that the steam machine is faster, and I would say the Diesel shovel is about eighty-five per cent as fast as steam, however, we are primarily interested in costs per unit quantities moved.

"With this 50-B Diesel we can take out eight and ten-foot cuts, borrow alongside and make eight to ten-foot fills at a cost of approximately two cents per yard, that is, of course, in materials that can be moved without shooting, and, excepting in very heavy fills, we do not move material with wagons or trucks, as it is hard to move this either by wagon or truck for less than nineteen cents per yard. In material that can be handled in this way you can make a double move for four cents per yard, or three moves for six cents per yard with the shovel. This is, of course, if you do not care for the looks and do not want sandpaper finish work. All we are interested in is getting a roadbed for our railroad at the least possible cost, and as we build approximately fifty miles of railroad per year it is no very small item.

$20,000 Saving in Six Months

"The actual costs of yardage moved by steam shovel and Diesel shovel are twenty-six cents for steam and four cents for Diesel, or a saving of $20,000.00 in yardage moved by the Diesel in six months.

"These costs include all actual costs of moving, delays, repairs, etc., but not depreciation or general plant overhead. This figure of four cents for Diesel may seem low. It is, and we have at present on this job two ¾-yard steam shovels, two 1-yard steam shovels, and one 1¾-yard Diesel. The steam shovels have been on the job from two to six years — the Diesel, since April, 1926. Of course, under favorable circumstances, steam rigs will do better than my costs show, however, this is our condition, and economy certainly points to the Diesel type."

Harry Heisler and Frank Martin are the engineers on the Diesel shovel and Ted Hardy is oiler.

Other equipment on the job includes five Best "60" tractors, with the heaviest type graders and forty-cubic-foot, one-man type, revolving scrapers.

The Red River Lumber Company takes a great deal of interest in tabulating operating costs, and they are well known for efficiency of operation.

Merle Prussia is general foreman of the operations and George Wilkerson is shovel foreman. The officers of the Company consist of T. B. Walker, President; Gilbert M. Walker, Vice-President; Willis J. Walker, Vice-President; Fletcher L. Walker, Treasurer; and Archie D. Walker, Secretary.

We are indebted to Mr. J. H. Hunter, Chief Engineer of the Red River Lumber Company, for a great deal of the information used in the preparation of this article.

Excavating Marl for the Virginia Portland Cement Corporation

(Continued from page 294)

loosened. The discharge from the hammer mill is delivered to a flat belt conveyor 36 inches wide, which carries the material to the top of the washing building. Here it discharges to two units of Dorr washers. The function of the washers is to remove the clay, sand and other impurities from the marl, and thus raise the lime content to a point suitable for cement manufacture.

The marl comes out of the washing plant by means of a conveyor mounted on a cantilever bridge, adjusted so as to load the barges to full capacity, about 350 cubic yards. When three barges are filled, a tug tows them to the plant at South Norfolk, which has dock facilities on the Elizabeth River. Altogether there are nine or more barges in service, three of which are being loaded, three unloaded and three in transit. The tug makes two trips a day, and this is more than ample to adequately supply the requirements of the plant, 1200 to 1500 tons per day.

"Are you Hungary?"
"Yes, Siam."
"Den Russia to the table and I'll Fiji."
"All right, Sweden my coffee and Denmark my Bill." — *Cookie.*

"Give me a sentence with the word celery."
"Every time he goes down celery takes a drink."
— *Bell Hop.*

Dobbin's Curve

Mr. Rayfield, industrious and courteous, a civil engineer of the old school, assembled his party one bright, crisp morning. The job at hand was staking the center line of a Bridgeport, Connecticut, street. The grade of the street was an ascending one of about 3 per cent for several hundred yards, and descending at a sharper angle. The neighborhood was thinly settled, but a brick chimney raised its top above the crest of the hillock, making it an ideal object for a foresight. The transitman set up at station zero, picked his chimney sight and staking began, posts being set at 50-foot intervals. The driving was hard work. It was necessary to use an iron bar to make a hole for every stake. When about 200 feet had been run, the transitman moved up to a new hub, since traffic on the cross-street had become annoying. Again he set up and sighted as before and the job proceeded. When another 200 feet or so had been staked it was noticed that stakes were not in line. This information was at once announced, and Mr. Rayfield came forward and verified it.

"What are you doing?" he shouted at the transitman.

"Givin' line and freezin' in th' bargain," replied that individual.

"Givin' a dog-gone curve, dammit" said the head chainman. Meanwhile, the other chainman, urged by a sudden "hunch," had trotted ahead to the top of the hill and was now shouting and beckoning the others to join him. They joined him immediately. They looked ahead.

The house with the convenient chimney was on rollers and a patient old dobbin was toiling at a windlass.

— *F. E. T. in Engineering News-Record.*

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Business at High Level

"Business is good," although in general a little below the mark for this time last year. The recession seems to be a little more seasonal; to some extent the weather is to blame; floods, storms and cold weather have held up the buying of the public, and in certain sections have very seriously decreased their buying power. The coal strike has not affected the business situation to any marked degree, production being reported as about eighty per cent of the rate at this time last year.

The volume of construction is unusually high; in fact, according to the F. W. Dodge Corporation, June construction contracts east of the Rocky Mountains broke all previous monthly records. Building and engineering work contracted for last month in the 37 Eastern States (including about 91 per cent of the country's total) amounted to $632,478,000. There have been only four previous months that had as much as 600 million dollars in contracts: August 1925, August 1926, March 1927, and April 1927. March of this year held the previous high record of $620,738,200. The June increase over May was 15 per cent; over June 1926, 16 per cent.

The June record brought the volume of construction started during the first half of the year up to $3,187,993,300, which is 2 per cent ahead of the first half of 1926. Up to June this year had been running a little behind last year. It should be understood that building construction has run appreciably, though not seriously, behind last year, and that engineering work has largely increased.

The June contract record included the following important items: $238,814,100, or 38 per cent of all construction, for residential buildings; $151,398,500, or 24 per cent, for public works and utilities; $88,122,400, or 14 per cent, for commercial buildings; $42,121,800, or 7 per cent, for educational buildings; and $33,879,300, or 5 per cent, for industrial buildings.

Contemplated new work reported in June amounted to $729,178,900, which was 14 per cent less than the amount reported in May and 10 per cent less than that reported in June of last year.

The National Mortgage Corporation, New York City, asserts that the building of single homes is still on the increase and that building costs are on a sounder basis than in recent years, a condition conducive to continued activity. Earl F. Stokes, executive secretary of the National Association of Builders Exchanges, ridicules in the American Builder Economist all talk of a 1927 decline in construction, saying there is enough work in sight to keep the building industry busy for many months.

But every industry is not as fortunate as the construction industry. Automobile manufacturing, for example, is having what appears to be a more than seasonal decline. It is difficult to tell, however, to what extent this recession is due to, the public holding off from buying until they see the new models which one or two manufacturers are expected to announce in the fall. If a very active buying period sets in with the announcement of new models in the fall, 1927 even in this industry may set a record. The July Business Bulletin of the La Salle Extension University was headed "For the first time in history, we now have a period of prosperity that does not seem to be generating the seeds of its own doing." This statement is true but it is difficult to expect, as some authorities have stated, that the country has developed in its study of economics and financing to a point where it is immune to the constant ups and downs we have had in the past.

Over-production has been one of the serious factors leading to periods of depression. The present buying "from hand to mouth" tends to keep production and public buying power in harmony.

Short crops which may be experienced this year will probably mean higher prices for the products of the farm. Whether or not this will make a greater total income to the farmer remains to be seen, but it is pretty certain that the farmer will get more per unit for his product than he did last year. The situation is a healthy one.

Call money rose to five per cent with the paying of the interest and dividends which came due on July first. Shortly afterwards, the second week in July, call money was again available at 4⅛ per cent in New York. Time money during the first part of July brought 4⅝ per cent.

The statement of the Reserve Banks shows a reserve ratio of 77.6 as of July 2nd and 76.8 for the second week in July — unusually good. The Federal Reserve rediscount rate remains at four per cent.

Car loadings are lagging behind the figures for a year ago. They are unusually good, however, and some of the Eastern and Southern roads made notably good reports for the month of May.

The number of shares sold on the stock market during the week ending July 2nd is low for this year, as an average price of fifty stocks on the New York exchange was 160.71, comparing with the average of 118.02 for the second quarter of last year, indicates a high level for stock prices.

Business failures are much below the weekly average for the first two quarters of 1927, and although these two quarters were a little above the same periods for last year the present number per week is considerably below the weekly average for the first two quarters of 1926. The figures are: Week ending July 9, 313; first quarter 1927, 521 weekly; second quarter 1927, 434; first quarter 1926, 472; second quarter 1926, 414.

Bucyrus-Erie Consolidation

Mr. William W. Coleman, President of Bucyrus Company, South Milwaukee, Wisconsin, announces a plan, a merger or consolidation of that company with Erie Steam Shovel Company, of Erie, Pennsylvania. He states that the directors of both companies met today, that of Bucyrus at South Milwaukee and that of the Erie Steam Shovel Company at Erie, and approved a plan for the union of the two properties.

By the terms, notices of which are being mailed to the stockholders, deposits have been asked for the stocks of both companies, and on sufficient deposits being made a third company is to be organized, probably known as Bucyrus-Erie Company, which will take over the assets of the present concerns.

Holders of preferred stock in Bucyrus Company will be given preferred stock in the new company, share for share, which new preferred stock will be callable at 120. Holders of preferred stock in the Erie Steam Shovel will be granted a like privilege.

Holders of the common stock of the Erie Company are to be given Convertible Preference stock of the new company, carrying a dividend of $2.50 per year, dependent upon the payment of dividends of $1.00 a year on the common stock. All the common stock of the new company goes to the holders of the common stock of Bucyrus Company, who will receive three shares of common in the new company for one of the shares as at present issued. Holders of Convertible Preference stock may change over at any time into the common.

Bucyrus Company was originally organized at Bucyrus, Ohio, about forty-seven years ago and was reorganized at South Milwaukee in 1911. Its specialty has been heavy machinery, of which it has been a leading manufacturer in this country with increasingly large sales abroad. Erie Steam Shovel Company was formerly the Ball Engine Works at Erie, Pennsylvania, which in 1914 turned to the steam shovel business. Its specialty has been in smaller shovels.

The new company will have a complete line of machinery and very large assets, with average earnings over the past five years of approximately $3,300,000 a year. It is understood that the new company will use all the facilities of the old companies and that it will be managed by those who have had experience and understanding of the industry.

In the word that has gone out to the stockholders special mention is made that the exchange of securities will not constitute a present taxable profit, and that if the plan is carried out fully there will be no expense to either of the old companies or the new company for financing.

Keep Blasting Caps Away from Children

The Institute of Makers of Explosives tell us that approximately 500 children are crippled each year by playing with blasting caps which have been lying around on construction work and in the vicinity of mines and quarries.

Those of us who have had anything to do with blasting know very well how quickly and upon what slight provocation the fulminate of mercury cap will explode. Many a miner has crippled himself for life by biting the cap on to the fuse instead of using a crimper, and many have killed themselves by carelessness in handling these highly explosive detonators. When you leave the job in the evening, and particularly on Saturday, make sure that no extra caps have been left on the ground. The kids are sure to be playing around the works on Sunday, and a nice, shiny metal cap looks like an excellent plaything.

Don't carry caps around in your pocket; don't take them home with you; don't leave them where children can get at them.

How the Carburetor of Your Gasoline Engine Affects Lubrication

By G. S. HAMILTON

Climax Engineering Co., Clinton, Iowa

The adjustment of the carburetor on the gasoline engine determines the proportion in which gasoline and air shall be fed to the engine. This proportion has an important effect on lubrication. Incorrect carburetor adjustment may cause oil pumping, carbon formation or thinning of the lubricating oil by dilution with fuel.

"Oil pumping" is the accumulation of excess lubricating oil in the combustion chamber. The oil accumulates because it cannot burn — either from lack of heat to vaporize it or lack of air to consume it. With too rich carburetor adjustment there is not enough air to burn the gasoline completely, and obviously not enough to consume any excess of lubricating oil.

If the carburetor is adjusted to idle too slowly, or if the engine is run too long in this position, the tendency toward oil pumping is greatly aggravated. In the idling position, the carburetor throttle is almost closed, and a high vacuum is developed in the intake manifold and combustion chambers. This vacuum tends to draw the oil up past the pistons. The over-oiling tendency is made worse by the fact that the idling mixture is necessarily a rich mixture, and the oil is likely to accumulate because there is not enough air to burn it. Idle the engine for a short time, step on the accelerator, and prove this by the cloud of smoke which comes from the burning of the oil accumulation when the engine is opened up.

In starting the engine, particularly in cold weather, it is necessary to choke the carburetor. This is because the greater portion of the gasoline is too heavy to vaporize in the cold cylinders and consequently cannot be fired. The mixture needed to start cold engines must be from five to seven times as rich as the normal mixture. Only about one-fifth of the fuel is light enough to vaporize and fire at the low temperatures. The rest remains in liquid form and thins out the lubricating oil. It is perfectly clear that if the choke is used to excess the lubricating oil will be thinned down so much that it will lose part of its value. Avoid excessive choking or unnecessary use of the choke after the engine has started.

Keeping the engine reasonably hot helps both carburetion and lubrication. A large part of the fuel which may have previously accumulated in the oil will be driven off when the engine is thoroughly hot and the oil restored to its proper body.

The Miami Trailer-Scraper Company Announces Two New Scraper Models

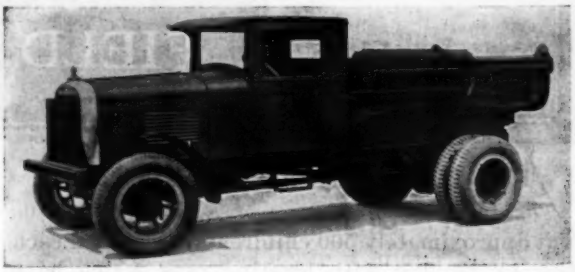
Up until the present time the Miami One-Man Power Scraper has been manufactured only for the Fordson tractor. They are now ready to produce the

Miami Scraper for use in connection with the 10-20 McCormick-Deering tractor and the two-ton Caterpillar tractor.

These two models have the same features incorporated in the Fordson unit which they have been manufacturing for the past several years. There has been one addition, however, that is, the capacity of the pan has been increased to full three-quarters of a yard.

New Indiana Truck — Model "615A" Road Builder

The Indiana Truck Corporation, Marion, Indiana, has just announced a new six-cylinder two 7-bag batch road builder. The company says that the chassis of this type in road-building work gives greater speed, and is used principally where longer hauls are required and fewer stops.



The Model 615A Six-Cylinder Road Builder will be furnished with a 60-72 cubic foot dump body, which is the right capacity for two 7-bag batches, 1, 2, 3 mix; and also two 6-bag batches, 1, 2, 4, mix; or two 6-bag batches, 1, 2, 3½ mix; when the cement is carried in sacks on top of the sand and stone.

Detailed specification sheet may be obtained by addressing the company.

Chicago and Vicinity

BY H. C. HELT

The T. J. Forschner Contracting Co. is making wonderful progress on the West Side Sewerage Treatment Plant, and they are keeping their Bucyrus Class-14 and Class-80 steam draglines very busy since they were installed. Their work here should make a very nice story for The Excavating Engineer, as it is a job of large and interesting proportions.

The U. G. I. Company of Philadelphia are getting along very nicely with their work on the State Line Generating Company's job. Mr. Arch Robinson was recently put in charge as supervising engineer, and he has speeded up the work considerably. Their Bucyrus 50-B steam clamshell has been converted into a pile-driving machine, and they are at present driving wood sheeting with it.

Mr. A. F. Hartigan is finishing his sewer job at the Gary Tin Mill of the American Sheet and Tin Plate Company at Gary, Indiana. Mr. Hartigan finished this job about 60 days sooner than he expected, due to the efficiency in handling the work and the use of the Bucyrus 50-B steam machine. It assisted him very successfully in handling the sewer tile.

The Midcontinent Construction Co. of this city has been awarded the second section of the State Line Generating Company's work, which consists of about 6000 foundation pile and 20,000 yards of excavation. The Herlicy Bros. who own the Midcontinent Construction Company are actively in charge of the work. The State Corporation subcontracted the job of driving the piles and Mr. Connor tells us he will have several rigs on the job in a few days.

The States Corporation was low bidder on the Salt Creek intercepting sewer contract recently let by the Sanitary District of Chicago. This is quite a large job and consists mostly of sewer in tunnels.

The W. J. Newman Co. of this city was awarded a contract by the Sanitary District of Chicago for about 3000 feet of 50-inch internal height sewer on the North Shore near Winnetka.

Detroit and Vicinity

BY P. M. RICHARDS

Two more Bucyrus 41-B steam machines were added to the Bucyrus list in Detroit early in July. One is owned by Frank P. Miller and is on landscape work in charge of L. P. Johnson, and the other by The Wayne County Road Commission. The latter machine is under the supervision of H. A. Morse and is on bridge construction.

S. A. Healy is using his Bucyrus 30-B as a crane and clamshell serving a tunnel shaft instead of the usual tiffle and cages. It is said that all records for tunnel construction in Detroit have been exceeded on this job. It may also be well to mention that Mr. Healy's new shop on Seven-Mile Road is now in operation, and Mr. McDonnel has moved his office from the American State Bank Building to the shop.

While working in a swamp near Pontiac, W. G. Hay's Bucyrus 20-B Diesel had the misfortune of tipping into a hole. The report has it that although the machine was over on its side it was pulled back on the mats with no damage except one exhaust pipe broken. The machine came out on its own power after it had been replaced on the mats.

The Central Contracting and Engineering Company are progressing nicely on their job, and have recently taken a subcontract for Henry Ianni in Dearborn.

Iowa and Vicinity

BY H. C. EMERY

Jenner Brothers have just completed the excavation for the new Royal Neighbors building at Rock Island, Illinois. The job entailed approximately 20,000 yards. The Bucyrus 31-B averaged about 950 yards per day with Sullivan at the levers.

C. E. Walker is progressing nicely on the drainage job he has near Muscatine, Iowa. The Bucyrus D-2 Diesel dragline is performing beautifully, working two shifts. Mr. Walker says he can put two buckets a minute into the levee, which is exceptional in view of the job being cleanout work.

Mulgrew and Son of Dubuque have moved a 3-T Monighan on to a job in New Jersey. They have likewise started moving dirt on a big drainage job near Maukocata, Iowa.

S. J. Groves and Sons of Minneapolis were awarded a big road job in Dubuque County on July 24th. The job entails the following quantities: 211,843 cubic yards of common excavation, 4,200 cubic yards of solid rock, 1,905 cubic yards of loose rock, 674,200 station yards of overhaul and 1,490 feet of culvert labor.

The M. & S. Construction Company of Sioux City were awarded a contract by Clinton County recently. The job contains 68,523 cubic yards of excavation, 680 cubic yards of loose rock, 1,365 cubic yards of solid rock, and 2,600 cubic yards of channel excavation.

The C. F. Lytle Company of Sioux City, Iowa, collected a $100,000 estimate recently for the making and driving of concrete piles only on a sea wall contract near Gulfport, Mississippi. Last month the company secured an additional contract for 20 miles more of sea wall.

Peterson, Shirley & Gunther of Omaha have taken a contract for the construction of 65 miles of railroad from Glendive to Circle, Montana. The new line is being built by the Northern Pacific Railroad.

Kentucky and Missouri Notes

BY B. R. ANDRES

Callahan Construction Co., have just started another Bucyrus 50-B on their River Des Peres job in St. Louis.

Robinson & Sons have started their state road job from Arlington, Kentucky. C. A. Colegrove has the contract for unloading and hauling the gravel. He is using his Bucyrus 31-B clamshell machine.

Carter, Carter & Braden are unloading gravel at Clinton, Kentucky, with their new Bucyrus Diesel clamshell machine. Last reports were that they were making rapid progress.

C. I. Jones of St. Louis expects to complete his road contract at High Ridge, Missouri, in about two weeks.

C. W. Marshall of Kansas City is using a Bucyrus 50-B steam shovel on his Pennsylvania job, subcontracted under Walsh. The shovel is working just outside of Collinsville, Illinois. They are double shifting now. Art Sherman, run-

SHOTS FROM THE FIRING LINE — Continued

ner, and Ferrell Roam, fireman, have one shift, and Jim Gallagher, runner, Mart Soso, fireman, the other shift.

Harry Russell is pulling the levers on Cohee's Bucyrus 50-B shovel at Sorento, Illinois. Bob Arthur is making steam.

George Yoder and Lawrence Tedder are running the Weldon Springs Quarry Company's shovels. Robt. Frercher and Henry Bonnereus are firing.

Ed. Baum, runner, and "Hardluck" Charley Hardy, fireman, are working one of McNamee Bros. Erie shovels at Jefferson City, Missouri.

R. O. Blaker, runner, and Jim McNeil, fireman, are working the other Erie at Warsaw, Missouri.

L. E. Morris of Owensboro, Kentucky, recently purchased a Bucyrus 31-B dragline to use at Rockport, Kentucky, on J. T. Sipes & Co. road contract. The machine will have about 40,000 cubic yards of levee to build there.

Minnesota Notes

BY C. W. HAY

Foley Bros. were recently awarded the rock excavation on the approach to the Palisades end of the Hudson River Bridge at New York City. They are planning to move their Bucyrus 50-B Diesel shovel to New York for this job.

Another successful bidder on eastern work are Johnson, Drake & Piper of Minneapolis, who were awarded 16 miles of 40-foot paving on Long Island, New York, for approximately $1,400,000.

L. A. Bumgardner & Co. have landed a nice job for their Bucyrus 70-C shovel. This is a 155,000-cubic-yard fill on the Northern Pacific in Northern Minnesota.

A prominent contracting firm in elevating grader work broke into the shovel field when Stanley Bros. of St. Cloud, Minnesota, were awarded the highway job at Norton, Minn., for $149,019. They are planning to install two shovels on this work.

T. J. Friedrich, Globe Building, Minneapolis, is on the lookout for subcontracts on which he can use his Bucyrus 70-C and 4-yard car outfit. He has sublet the highway work between Laurel and Loman near International Falls, Minnesota, to McCullough and Cheney.

The Northern States Power Company will start construction work on the hydro-electric power plant at Chippewa Falls, Wisconsin, in the latter part of August.

Pacific Coast Notes

BY P. H. BIRCKHEAD

Contract awarded to A. J. & J. L. Fairbanks, South San Francisco, who bid $77,920 for the grading of 1.4 miles of the San Gabriel High Line Road, in connection with the construction of the Los Angeles County Flood Control District, San Gabriel Dam Project.

Bonds in the amount of $1,400,000 were voted by the City and County of San Francisco, for construction of the Bernal Cut. Estimated cost of construction work is $900,000, the balance of $500,000 is for the acquisition of necessary property, etc.

Mr. Nate Lovelace is progressing very well with his road contract for the United States Bureau of Public Roads near Covelo, California. This is a very difficult piece of work, as it is almost at the summit of the Coast Range and is about fifty miles from the nearest railroad. Mr. C. C. Hudtloff is operating one of Mr. Lovelace's machines, and is turning out his usual large monthly yardages.

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The NEW
THESE ADVANTAGES MEAN WIRE ROPE DOLLARS saved
Twisted Strand from Ordinary Wire Rope
Preformed Strand from Tru-Lay Brand Wire Rope

1. Resists unstranding, high stranding and kinking — Because It's Preformed

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Let us tell you in detail how the exclusive Preformed construction embodied in Tru-Lay Brand Preformed Wire Rope will save many dollars for you. Write today for complete information and a sample.

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PREFORMED WIRE ROPE

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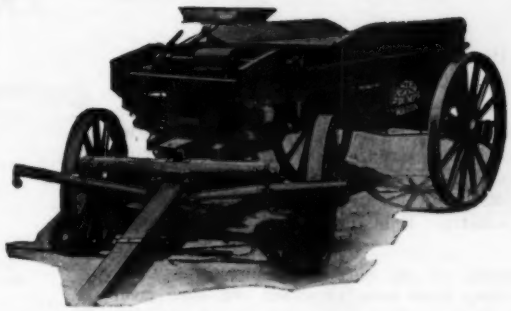
How Long Will Your Wagons Last?



WESTERN 1½-yard Dump Wagon with wood bolster. Steel when desired.

Will they be able to carry you through any emergency?

If you use WESTERN Dump Wagons you may be sure of rugged construction and sound principles of design.

That is merely another way of saying that WESTERN Wagons have the stuff to meet any emergency and have long life.

WESTERN Wagons will pull you through.

Bulletin No. 27-K-EE explains these wagons in detail.

Write for one today.

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Better Buy Westerns NOW than Buy and Buy

WESTERN WHEELED SCRAPER COMPANY

Dump Cars and Grading Equipment

AURORA - - - ILLINOIS

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SHOTS FROM THE FIRING LINE — Continued

Contract awarded by County Sanitation District No. 2 to Ross Construction Company, Van Nuys Hotel, Los Angeles, who bid $425,000 on Type 1, for constructing reinforced concrete sewer, Units 2, 3A and 3B.

Contract awarded to Foley Brothers, St. Paul, Minnesota, for the construction of 63 miles of railroad from Glendive, Montana, to Brockway, Montana, for the Northern Pacific Railroad, St. Paul, Minnesota. Estimated cost of work is $2,500,000.

Coast Rock and Gravel Company are installing a Bucyrus 80-B electric shovel at their Elliott plant near Livermore, California.

Pennsylvania Notes

BY T. H. BARRETT

Scranton and Vicinity

The Public Works Department has recently finished the concreting of Lake Lincoln, a job which involved the laying of nearly 80,000 square feet of concrete. Completion of this improvement gives Scranton one of the finest outdoor swimming pools in the country. It is 700 feet long and averages 200 feet in width.

Thomas Harrington of the Scranton Contracting Company reports that they have been knocking out some good yardages with their Bucyrus 70-C caterpillar shovel. During May and June they averaged 2000 yards a day.

Hazleton and Vicinity

The anthracite market is very dull, with some hope for betterment after August 1st. Most of the mines are working an average of four days a week. The stripping operations are working about the same.

W. J. Gilbert of Hazleton has been awarded a small stripping job at the east end of Broad Street, Hazleton, and expects to complete the job before the end of the year.

A. E. Dick of Hazleton has been awarded the contract for widening and deepening the drainage creek at Tomhicken by the L. W. Coal Co. He will use a Bucyrus 50-B Diesel dragline on the job.

Bethlehem and Vicinity

The Central Railroad of New Jersey have asked for bids for the erection of a roundhouse and shop in their new yard between Allentown and Bethlehem. The pit excavation has already been done by F. H. Clement and Co. of Bethlehem and the yard grading by James Hart of New York.

Southern States Notes

BY W. W. WHORLEY

W. H. Kimbrell, who has been operating for J. A. Kreis, near Linden, Alabama, was a recent caller at this office.

Hubert Porter is handling a Bucyrus D-2 dragline for Jenner Brothers near Islamorada, Florida.

B. M. Clements of Mulberry, Florida, wrote recently that he was operating a Bucyrus 20-B Diesel dragline for the International Agricultural Corporation.

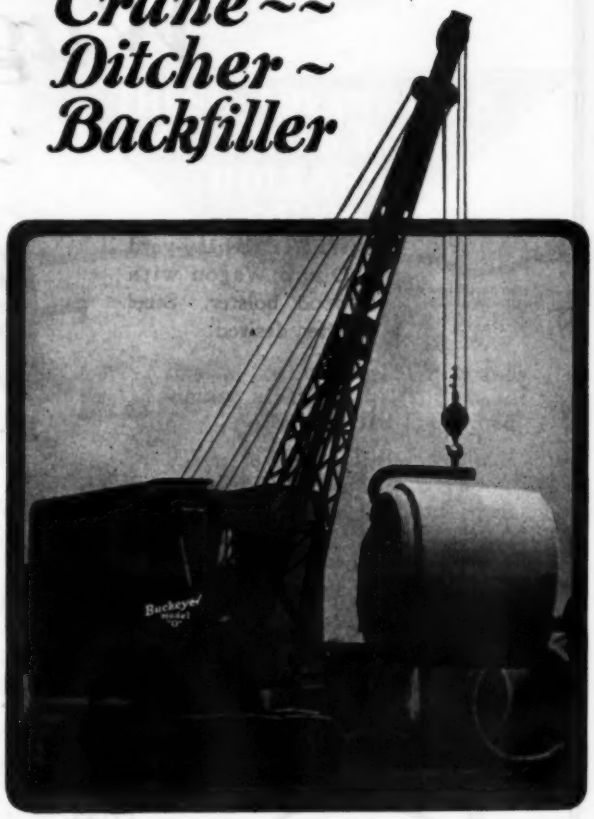
Weston & Brooker have installed a Bucyrus 50-B electric shovel in their large quarry in Columbia, South Carolina, in order to handle the large volume of business they are now enjoying.

L. L. Spivey, who is operating a Bucyrus 31-B shovel for the H. C. Spinks Estate near Newport, Kentucky, paid a visit to his old home at Anniston, Alabama, recently.

J. B. Turner reports good progress on his highway project near Bethel Springs, Tennessee.

"More Work"

Crane ~~ Ditcher ~ Backfiller



A large concrete pipe company bought this Buckeye Utility Backfiller-Crane because of its general service ability.

After strenuous tests, they declare that *"it is capable of doing more work than the manufacturers claim for it."*

Buckeyes usually do. The reasons are contained in interesting illustrative and descriptive literature which is sent free on request. Your copy is waiting.

The Buckeye Traction Ditcher Company ~ Findlay, Ohio

There's a Buckeye Sales and Service Office Near You

Buckeye FOR OVER 30 YEARS

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"- - - their use saved important sums"

one of the scenic wonders of America, is reached by a short side trip. A large portion of the new route is through a primeval wilderness of Douglas fir, white pine, sugar pine, It has 80 fewer curves than the previous track between these points and 713 ft. less ascending to do in other direction.

Bridges and Culverts.— A large number of corrugated pipes were used for the waterways of less than 16 sq. ft. cross-sectional area; and this form of culvert proved surprisingly effective in reducing construction costs. It was desirable to get culvert structures installed ahead of the grading operations, as this greatly facilitated all subsequent work. Adoption of such a plan, however, involved hauling culvert materials for long distances on trucks and wagons over the worst of mountain terrain where roads are practically non-existent. The corrugated pipes, because of their lightness and toughness, were peculiarly adapted to such situations; and it was found that their use was the means of saving important sums. In addition to a great many Armco pipes of the smaller sizes, quite a number of 48 in. and a few of 60 in. diameter in number 8 gauge iron were employed; and most of these are functioning perfectly even where placed under fills from twenty to thirty feet in height.

The new line will be of the greatest benefit, not only to the region it directly traverses, from which immense

This paragraph from an article in the January Engineering and Contracting tells a story of great importance to the engineer who would keep grading and construction costs at a minimum — just one of the many advantages that have made Armco the predominant culvert.

"Look Under Your Roads" The only dependable evidence of culvert durability is that supplied by culverts now in service under the roads in your own territory. Get this evidence through your own independent investigation or ask other engineers who have conducted such investigations what they have found out.

ARMCO CULVERT MANUFACTURERS' ASSOCIATION

MIDDLETOWN, OHIO

Forty modern manufacturing plants throughout the United States and Canada assure you immediate service on drainage requirements, no matter where you may be.

ARMCO CULVERTS

Predominant in use — because predominant in quality

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SHOTS FROM THE FIRING LINE — Continued

A large number of bidders attended the letting held by the Tennessee State Highway Department early in July. Prices bid on this work were rather low.

Mr. E. L. Morrow, formerly with the Decatur Brick & Tile Company at Decatur, Alabama, is now in charge of the Hammond Baton Rouge brick plant near Hammond, La.

J. D. Morris is operating a Bucyrus 78-C shovel for the Ainslie Lime Rock Company near Macon, Georgia.

Southern California and Arizona Notes

BY F. M. COLLINS

Contract has been awarded to Chas. and Geo. K. Thompson, Brockman Building, Los Angeles, who bid $377,775 for improvements in Drainage District No. 20, for the County of Los Angeles. This work consists of excavating, concrete work, 3½ miles reinforced concrete and plain concrete pipe.

Contract was awarded to A. J. and J. L. Fairbanks, South San Francisco, who bid $77,920 for the grading of 1.4 miles of the San Gabriel High Line Road in connection with the construction of the Los Angeles County Flood Control District San Gabriel Dam Project.

Crook & Henno are making fine progress on their Santa Fe work at Rowe, New Mexico. The enclosed photographs

show the contractor's new 41-B at work and the other one was taken in the contractor's office. The man with the big cigar is A. E. Henno, and evidently he has just finished his morning prayer services as he still has the little Bible in his hand. In connection with the picture of the shovel, it will be interesting to know that the shovel is loading into dump trucks. This is common practice on road work, but it is a new idea for railroad construction.

St. Louis Items

BY A. B. KOENIG

John Marsch, Inc., started work on 250,000 yards grade reduction on Mobile & Ohio Railroad from Columbia to Waterloo, Illinois. William Brothers will do the team work on this job, about 50,000 yards.

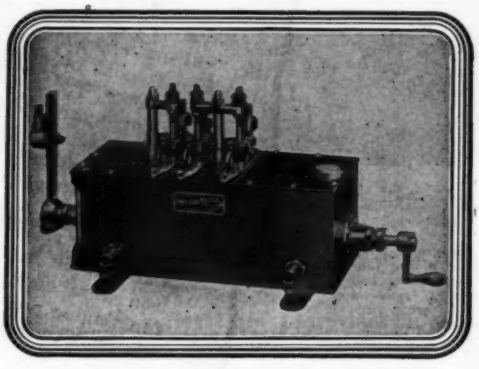
Cameron, Joyce & Co. were awarded contract for paving on Route 86, Section 46-S, Knox County, Illinois.

A McCord Force Feed Lubricator Will Keep Your Shovel on the Job

A McCord force feed lubricator installed on your steam shovel now will insure more continuous operation. Dependable force feed lubrication prevents shutdowns and delays, it gives more hours on the job.

McCord force feed lubricators are used as standard equipment by the largest and best-known steam shovel builders and they will be installed on any shovel at your request.

Put a McCord lubricator on now and be assured of dependable lubrication for the life of your shovel.



McCord Class B. A. Force Feed Lubricator

McCord Radiator & Mfg. Co.
Detroit, Michigan

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force feed
Lubricators

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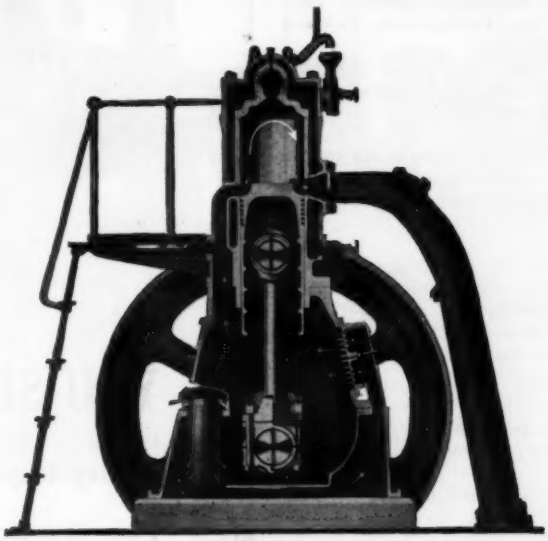
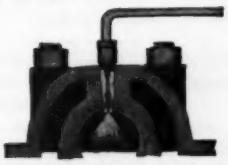


The long-sought simplicity *realized!*



After the Diesel came Diesel simplicity. And foremost in this *higher* development—the two-stroke-cycle airless-injection Fairbanks-Morse Diesel.

Today you have matchless F-M simplicity, and perfected design in a Diesel proved by more than 1,200,000 operating horsepower.

The Fairbanks-Morse Diesel—unequalled in simplicity, yielding to no other engine on the score of efficiency—is obtainable in sizes for practically all power requirements. Investigate. Ask for our new and interesting bulletin—*"A Comparison of Diesel Engine Principles."*

FAIRBANKS, MORSE & CO., *Chicago*

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Fairbanks-Morse Diesel dependability and fuel economy are direct results of the original and consistent F-M principle: valveless two-stroke-cycle construction. Note the exceptional simplicity of this design as shown in the sectional view of the engine. Also the simple method of fuel injection illustrated in the longitudinal section of cylinder head above. Among the outstanding advantages of this well-established Diesel are:

Low fuel cost
Maximum dependability
Long, useful life
Small operating force
Low maintenance cost
Instant readiness to deliver full power
No standby losses
Plant layout simplified
Small floor space required
Simplicity in operation
No service or demand charges
Uniformly high efficiency of all sizes of engine
Plant enlargement without sacrifice of investment or overall economy
Large water supply unnecessary
No chimney, smoke or ashes
No coal or ash-handling apparatus

FAIRBANKS-MORSE
DIESEL ENGINES

The Product F M *of Experience*

AOA 60.4

SHOTS FROM THE FIRING LINE — Continued

J. J. McCaughey shipped a team outfit to Diamond Bluff, Wisconsin, on two-mile cut-off on Burlington Railroad. They are also getting along nicely on their Pennsylvania Railroad work near Troy, Illinois.

Harry C. Holmes was awarded bridge contract on Route 95, Section 119-B, McDonough County, Illinois.

A. C. Comstock bid $202,000 for the construction of the mains and disposal plant in the southwest sewer district in Sedalia, Missouri, and was awarded contract. The engineers' estimate was $203,000.

The D. A. Foley Construction Co. have eight miles of double-track work on Texas Pacific Railroad near Ft. Worth, Texas. J. J. O'Connell is superintendent.

J. J. Donnelly, 3909 Lincoln Avenue, St. Louis, has a team outfit idle.

H. R. Smith, Charleston, Missouri, has 50,000 yards loam to move and would like to get in touch with some one that has a ½ or ¾-yard shovel to rent on yardage basis.

At this writing A. B. Koenig is ill and his son, Arthur, is batting for him.

Yale & Reagan has a narrow gauge outfit and team outfit idle.

W. J. Danklef, Mt. Olive, Illinois, has a machine outfit idle.

J. C. Kaiser has a machine and 20 teams at work on subdivision work in St. Louis County.

Bert Pollard, 5072 Arsenal Street, St. Louis, has a wheeler and fresno outfit idle.

Contractors when in want of work or labor for their outfits, write, wire or phone Koenig Labor Agencies, 612 Walnut Street, St. Louis, Missouri, or 501 Delaware Street, Kansas City, Missouri.

Canada

Montreal and Vicinity

BY J. M. WARD

Messrs. Gorman & Peckham are doing a stripping job for the Aluminum Company at Arvida.

We recently had a visit from Barney Holden of the Nelson River Construction Company, Toronto. They have three good-sized jobs under way at the present time.

The Canadian National Railways have not as yet called for tenders on the Grand-Mere to Burrills Section. This has been expected to appear every day for the past two months.

Dan Verochio is the proud possessor of a new Rogers Trailer, which he uses around Montreal.

Tim Cronin is handling Louis Ott's Bucyrus 20-B shovel in Montreal.

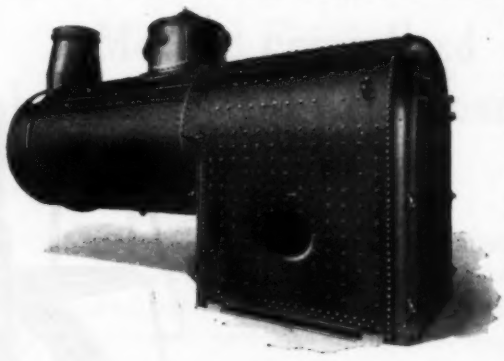
Bill Normand is still the proud operator of Gorman & Peckham's Bucyrus 20-B shovel up in the Lake St. John District.

Campbell & Rutherford are making progress on their excavating job for the Sun Life Assurance Company in Montreal. They are using an Erie and a Thew Shovel.

Toronto and Vicinity

BY C. F. ENGLAND

Jackson-Lewis Co., Ltd., of Toronto have contract for some large buildings at Oshawa for General Motors of Canada, Ltd.



YOU SELECT your equipment for its adaptability to your work.

For its power — speed — durability — rugged strength — efficiency.

Do not all of these depend upon the boiler?

Can you afford to consider anything less than the very best?

DO YOU LOOK FOR

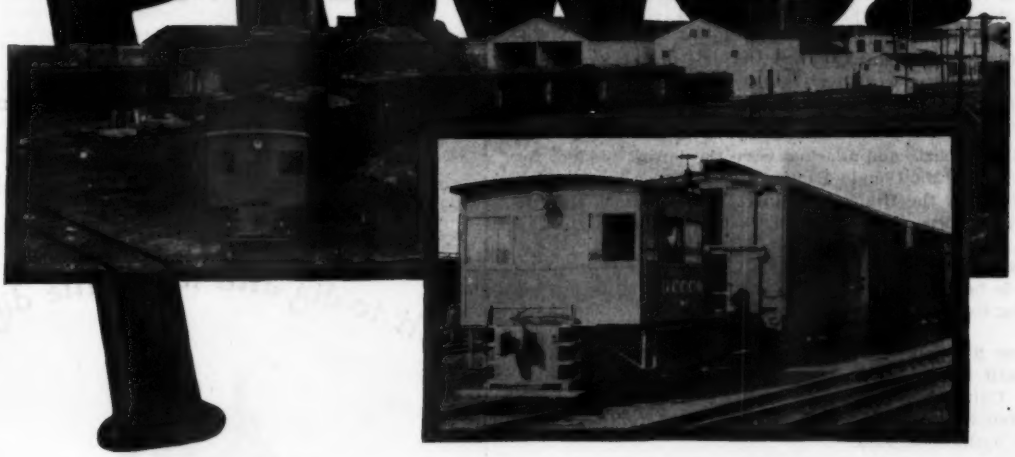
JOHNSTON BROS., Inc.

Specializing in Boilers for Contractors' Equipment

FERRYSBURG, MICHIGAN

In writing to Johnston Bros., Inc., please use post card bound in the center of this number.

Power



POWER—an inbuilt quality in Whitcomb gasoline locomotives—reduces haulage costs 83⅜ per cent in the plant shown above (*name on request*).

A "Whitcomb" handles 2959 loaded and empty cars in 96 hours—at a cost of only $0.1023 per car, against a former cost of $.60 per car when moved by steam.

The $0.1023 handling cost includes the wages of operator and towerman, locomotive maintenance, fuel, oil and all incidental expenses—an average of 31 cars being moved per hour, with a gasoline consumption of only 3¾ gallons.

When you buy a locomotive, you are making an investment in power—power to handle at low cost. "Whitcombs" are the lowest cost haulage tools for any haulage need.

Let one of our haulage experts apply a "Whitcomb" to your work. An inquiry implies no obligation.

Whitcomb Locomotives are made for every haulage need, sizes 3 to 30 tons or larger, all gauges, gasoline, storage battery or electric powered.

GEO. D. WHITCOMB COMPANY
Plant at Rochelle, Illinois
Offices in principal cities

GASOLINE—STORAGE BATTERY—ELECTRIC
WHITCOMB
LOCOMOTIVES

In writing to George D. Whitcomb Co. please use post card bound in the center of this number.

SHOTS FROM THE FIRING LINE — Continued

Construction and Engineering, Ltd., of Toronto have been awarded contract by the Dominion Government for a dam on the Trent River.

The Randolph MacDonald Co., Ltd., have made a good start on their bridge contract at Caledonia, Ontario.

Winnipeg and Vicinity

BY D. V. REDDIN

Tomlinson Construction Company, Ltd., are working on road and railway contracts in Manitoba and Saskatchewan. At Douglas, Manitoba, they are handling gravel from the pit with a Bucyrus 14-B dragline. Col. Evans, construction engineer for this company, has arrived at Sturgis, Saskatchewan, to commence work on the new 21 miles of line from this point to Hudson Bay Junction, for the Canadian National Railways.

Reid Mackenzie and Blacher were the lowest bidders for grading of the MacDonald Highway, and they were awarded the contract by the Highways Department, Manitoba Government. The prices varied from $68,000 to $100,000.

A section of the Trans-Canada Highway near Portage La Prairie is being constructed by H. G. Winslow & Co. They are using team outfits on this work.

A new five and a half-million bushel capacity elevator is being built by the Carter-Halls-Aldinger, Ltd., of Winnipeg, for the United Grain Growers, also extensions to the Saskatchewan wheat pool and the McCabe Bros., Ltd., elevators at Port Arthur, Ontario.

Macaw & MacDonald have been successful in obtaining contract for rock work at Point de Bois, Manitoba. It consists of an enlargement of the channel below the city of Winnipeg hydro-electric power plant.

Gravel work this season on the North Selkirk Highway will be done by the Northwest Sand & Gravel Co. Their tender was $35,000. Only two tenders were received, the second one being $50,000.

The continuous periods of wet weather in the western provinces has seriously interfered with this year's program for road work, and as the harvest will soon be on there is little chance to pick up on it.

TRADE NOTES

General Electric Appointments

Burton L. Delack, assistant manager of the Schenectady works of the General Electric Company since December 1, 1926, has been appointed acting manager, effective July 1, according to an announcement by Vice-President C. C. Chesney. Mr. Delack fills the vacancy caused by the promotion of C. E. Eveleth, elected a vice-president June 1 of this year.

Edward A. Wagner, formerly of the Fort Wayne works, but since July, 1926, managing engineer in charge of all distribution transformers, with headquarters in Pittsfield, has been made acting manager of the Pittsfield works, succeeding Mr. Chesney, who has been a vice-president in charge of manufacturing since the retirement of F. C. Pratt.

Giuseppe Faccioli, works engineer of the Pittsfield works, has been appointed associate manager and works engineer of the Pittsfield works, Mr. Chesney announced. These appointments are also effective July 1.

UNEQUALLED DIGGING POWER

due to the combination of lever and block-and-tackle, in the one way that gives *straight line* closing pull.

"Built to dig and last while digging"

G. H. WILLIAMS COMPANY

603 Haybarger Lane, Erie, Pa.

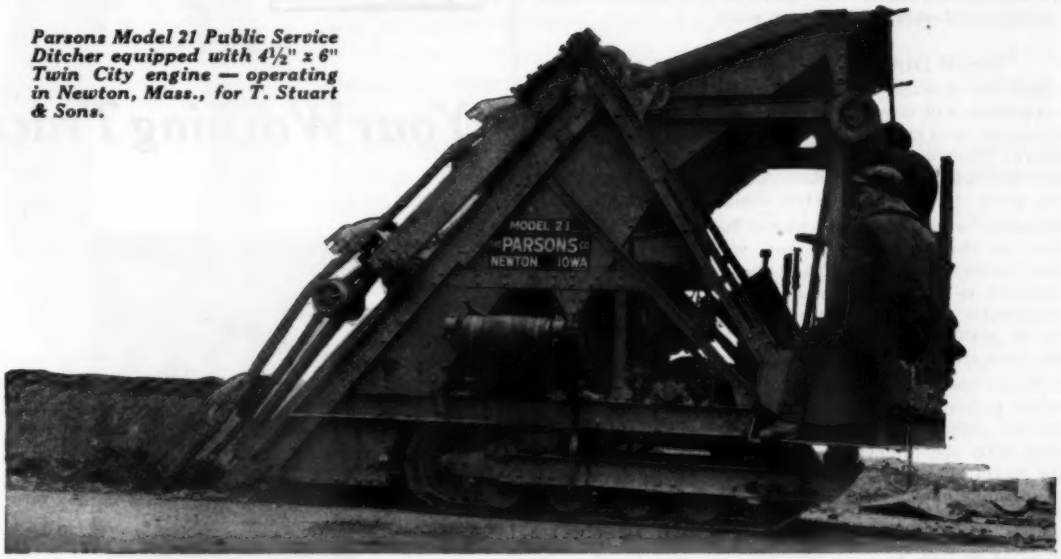
Branch Offices: New York, Pittsburgh, Chicago

WILLIAMS FAST-DIGGING BUCKETS

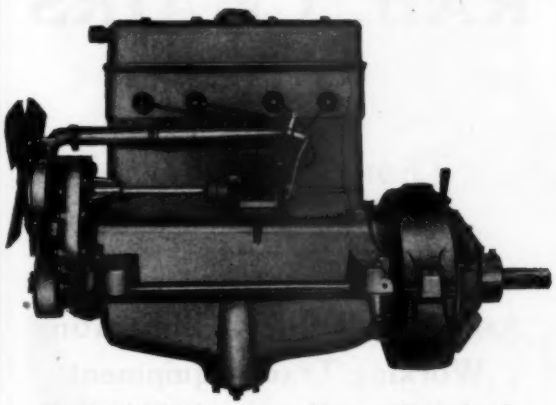
In writing to G. H. Williams Co. please use post card bound in the center of this number.

TWIN CITY ENGINES

Parsons Model 21 Public Service Ditcher equipped with 4½" x 6" Twin City engine — operating in Newton, Mass., for T. Stuart & Sons.



YEAR after year, on many different kinds of work, under trying working conditions—on long continuous runs under full loads—Twin City Engines are proving their stamina, power, dependability, brute strength and long-lasting quality. They'll make good on your equipment just as they have for the following



New Model FE 4½" x 6" 4-cylinder, valve-in-head.

Twin City Users:

Austin Machinery Co.
Baldwin Locomotive Works
Buckeye Traction-Ditcher Co.
Bucyrus Co., The Parsons Co.
Cement Gun Contracting Co.
Northwest Engineering Co.
Pennsylvania Pump & Compressor Co.
Star Drilling Machine Co.
Washington Iron Works
Willamette Iron & Steel Works.

Twin City Engines are made in sizes 35 to 140 h.p.

Write for Literature.

Minneapolis Steel & Machinery Company, Minneapolis, Minn.

Heavy Duty Engine Manufacturers Since 1903.

"BUILT TO DO THE WORK"

In writing to Minneapolis Steel & Machinery Co. please use post card bound in the center of this number.

TRADE NOTES — Continued

Changes in Trackson Company Personnel

Mr. H. D. Van Doorn, who has been with The Trackson Company for nearly four years and who, for the last two and one-half years has been Manager of Distribution will now be Assistant Manager.

Mr. L. E. Dauer, who has been Assistant Sales Manager, will now be Sales Manager, and as such have complete charge of all matters pertaining to domestic sales.

Small Dust-Tight Compensator

To meet the demand for a small automatic compensator whose operation will not be affected by the dust prevalent in grain elevators, coal crushing plants and other similar places, the General Electric Company announces a device for low voltages, enclosed in a boiler-plate case. This compensator has been given the General Electric designation CR-7051-J-2.

A standard automatic compensator is used in the construction, but the usual conduit box, wall support and top and front covers are omitted. The boiler plate case in which it is enclosed is made up as a unit with angles on which the compensator may be slid in or out. When the compensator is in position the angles can be raised to a vertical position, thus allowing the front door to close.

The boiler plate case is made up of ¼-inch plate. The front cover is held down by 14 wing nuts and clamps against a vellumoid gasket on the case. An extra cable clamp is furnished with the compensator to hold the cables and to take the strain off the terminal board when the compensator is put into and taken out of the case.

The Lakewood Engineering Company announces the appointment of The Mechanical Supplies Company, Cincinnati, Ohio, as a new agent, who will handle their complete line in the Cincinnati territory and adjacent Kentucky counties.

This company has been serving the industrial field as well as the contracting field the last ten or twelve years in this territory, and are now opening a construction machinery department, in addition to its regular supply business.

Mr. J. B. Miller is president, in charge of sales for this company.

This photo showing a swarm of road-building units cutting and grading a new street in a real estate subdivision, was taken at the recent demonstration of Fordson tractor-powered agricultural and industrial equipment, presented by the Ford Motor Company at Anadale, on Staten Island.

The Lakewood Engineering Company announces the appointment of The T. J. Lane Equipment Company, Springfield, Ohio, as agents for their complete line in the central Ohio territory.

Mr. Lane has been in the equipment business in this location for the past fifteen years, and has a good organization, and is in a position to render a real service.

A Good Foundation

—FOR—

Your Working Track

BUCYRUS CAST STEEL
RAIL CHAIRS

Thousands in Use

Ask for Bulletin S40 Illustrating Working Track Equipment

BUCYRUS COMPANY
SPECIALTY DEPARTMENT
SOUTH MILWAUKEE, WISCONSIN

H. W. NELSON COMPANY Says:

. . . . "the Asbesgraphite Molded Swinging Frictions you furnished for our 3 Bucyrus 50-B Diesel Shovels are still in service and in good condition.

The shovels handled approximately 4,000,000 yards without a moment's delay, attributable to the Swinging Frictions. They operate with a smooth, yet decidedly firm grip, speed up operation considerably, and improve the operating efficiency of the shovels. Before installing Asbesgraphite Frictions, we were constantly making adjustments or replacing the Asbestos Lining. It seems as though these frictions will last the lifetime of the shovels.

(Signed) H. W. NELSON."

Asbesgraphite Frictions and Brake Blocks carried in stock for any type of equipment.

We manufacture brake and friction blocks for steam shovels, draglines and locomotive cranes of every manufacture; also for every type of hoisting equipment, including Lidgerwood, Mundy, Mead-Morrison, Flory, National, Orr and Sembower, Clyde, American, Thomas, Lambert, and others.

Send orders direct to

THOMAS L. GATKE

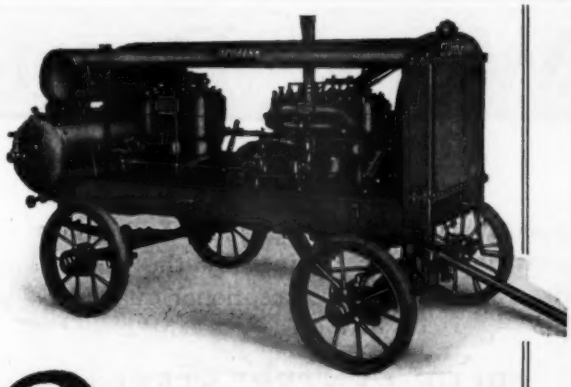
Manufacturer

Chicago Office: Railway Exchange Building

Factory: Winona Lake, Indiana

ASBESGRAPHITE
ASBESTOS COMPOSITION

"Ektag," the Gatke Folded and Compressed Asbestos Brake Lining, is carried in stock in many sizes and lengths for immediate shipment.



Compressors—
for every contracting and engineering job—

We supply the field with portable compressors for every need, in many types. A big job! But judging from the demand, the repeat orders, and favorable comments from users, Schramm compressors have made good in a big way. And no wonder.

Powerful Buda engines, each equipped with clutch, governor (a *real* feature), and gas strainer (keeps dirt *outside*), stand up under the worst abuse.

The simple, large capacity compressors keep your tools supplied with full pressure — economically.

Mounting — cast steel frame.

Let's co-operate and talk it over.

Sizes—60, 120, 180 and 240 cu. ft. Gas, electric or belt drive. Truck, trailer, skid or tractor mounted.

Get the catalog.

Schramm Inc., Manufacturers

West Chester, Penna.

Offices and Representatives in Principal Cities

TRADE NOTES — Continued

Formulas for the transmission of wheel loads to culverts through various thicknesses of cover are included in Bulletin 79, an 80-page illustrated bulletin published by the *Iowa Engineering Experiment Station* under the title of "Experimental Determinations of Static and Impact Loads Transmitted to Culverts." The bulletin is the result of a three-year highway research investigation conducted at Ames, Iowa, in co-operation with the United States Bureau of Public Roads.

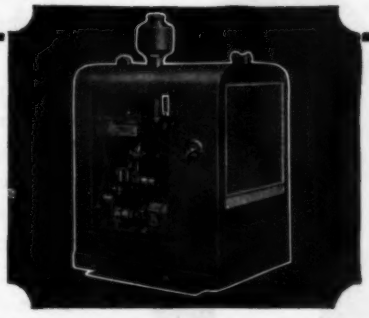
A 44-page illustrated bulletin, No. 80, dealing with concrete cradles for large pipe conduits has been published by the *Iowa Engineering Experiment Station*. The research investigation was conducted at Ames, Iowa, in co-operation with the United States Bureau of Public Roads. This bulletin deals with the action and effectiveness of cradled concrete pipe from 24 inches to 80 inches in diameter.

BOOK REVIEWS

We shall be glad to review such books and catalogs as are sent us

NOVO HOISTING HANDBOOK — Size 8½ x 11, 44 pages with cover. Very well illustrated. This should prove a very valuable handbook to the contractors. It has very interesting articles with the following headings: Platform Elevators and Material Skips; Concrete Handling Equipment; Gasoline Versus Steam Hoists; Clam Shell and Derrick; Steel Erection; Industrial Car Hauling; Drop Hammer Pile Driving; Dragline Work; Installation of Dragline Hoists; Standard Bridle Anchor System; Logging.

On Timkens



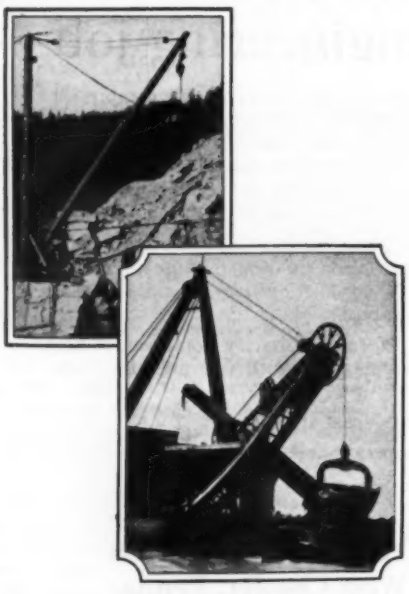
Four Timken Roller Bearings assure perfect alignment of both crank and take-off shafts. They end lubrication worries—and lengthen engine life. But this is only one of 9 New Features of the Newest 2 cylinder engine—*that is without vibration.* Send for others if you're interested in better 6, 9 or 12 h. p.

NOVO ENGINE COMPANY 222 Porter Street LANSING, MICHIGAN

THE NEW NOVO ROLLER ENGINES

Clarence E. Bement Vice-Pres.&Gen.Mgr.

ROEBLING WIRE ROPE



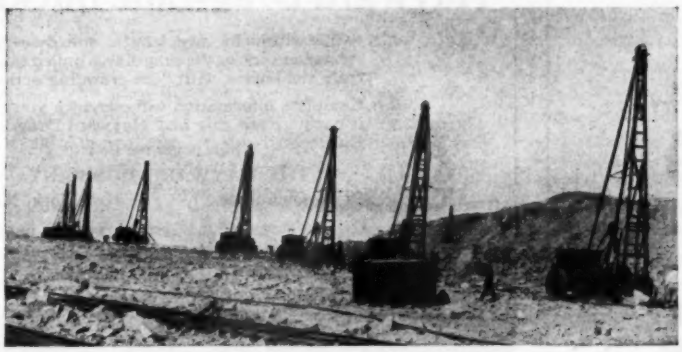
In excavating work exceptional conditions exist which must be met by the use of wire rope possessing exceptional qualities. Our

"BLUE CENTER" STEEL WIRE ROPE

possesses these qualities and is the ultimate choice of discriminating engineers for every purpose for which wire rope is used.

Catalog A-500

John A. Roebling's Sons Company Trenton, N. J.



When The Big Boys Drill—

DOWN in South America, perched 9,000 feet above sea level, at a distance 125 miles from seaboard is a wonderful open-pit mining operation — wonderful in size and wonderful in operating efficiency.

In April, 1917, one No. 14 Cyclone Electric Traction Blast Hole Drill was placed on this job. In the 10 years that have intervened, this old pioneer drill, doing its own sales work, has seen 67 of its brothers placed in operation alongside of it, all purchased as a result of steady and consistent performance.

The illustration above shows one bench of the mine with its complement of Cyclone Drills.

You may be sure that the men responsible for the economical operation of this great mine would not trust their production to Cyclone Drills unless they knew that this trust would not be betrayed.

Write for 120-page book, "Big Blast Hole Drills."

THE SANDERSON-CYCLONE DRILL CO.

Orrville, Ohio

Eastern and Export Office
30 Church St., New York

BOOK REVIEWS — Continued

BEAUMONT CABLE DRAG SCRAPER — 8½ x 11 — 32 pages with cover. This is catalog number 95, issued recently by the *R. H. Beaumont Company, Philadelphia, Pennsylvania.* It is well illustrated with photographs and diagrams, and contains interesting descriptive material concerning the use of the drag scraper for stripping, loading, storing and reclaiming sand, gravel, stone and other bulk materials. Those interested may obtain copies by addressing the manufacturer.

Radiators *any size any type! from 1-H.P. up*

Radiators of any size, 1 H.P.—1000 H.P. or more; Tubular or Cellular—Sectional or Conventional Cast—Sheet Metal—or if preferred only the cores or sections.

MODINE MANUFACTURING CO., RACINE, WIS.

MODINE RADIATORS

MADISON-KIPP FRESH OIL SYSTEMS

FOR the Cylinders and Bearings will lengthen the life of Steam, Diesel and Gas Shovel Engines.

Write for Information.

MADISON-KIPP CORPORATION, Madison, Wisconsin

Madison-Kipp Lubricators

FRESH OIL

so small and yet . .

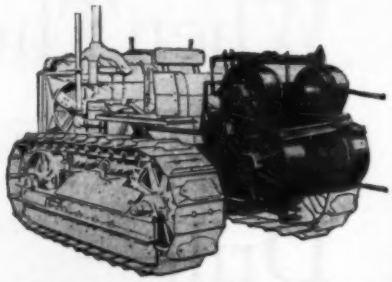
The hoist chain seems like such a small part of a huge shovel, but—one small break and the whole machine is shut down.

Don't let a little thing like a piece of chain shut you down. Use the best chain available and then keep extra chain on hand for the emergency.

S. G. TAYLOR CHAIN CO.

Established 1873

502 Marquette Bldg., CHICAGO, ILL.



Rugged Power plus Mobility

At last rugged power and mobility combined. Mounted on a Caterpiller "60" tractor, this big double drum, two-speed hoist will go anywhere. Ideal for chunking out right of way, operating drag line scraper, pile driving and many other uses.

WILLAMETTE IRON & STEEL WORKS, PORTLAND, ORE., U. S. A.

Dealers Everywhere

Willamette automotive hoists

ALLISON FOR THE FORDSON — WILLAMETTE FOR THE CATERPILLAR

Hayward Drag-Line Bucket

—fills within its own length, quickly—penetrates as soon as the drag-line is pulled taut—truly the bucket with "the crowding action."

Complete information will convince you that it pays to use this new Hayward Drag-Line Bucket. *Write for Bulletin 666-A*

THE HAYWARD COMPANY

52-54 Church St. New York, N. Y.

Roger Bacon was thought to be in league with the devil and thrown into prison for his scientific researches which included the development of gunpowder.

Magic— Old and New

A LITTLE less than six hundred years ago, Europe learned of gunpowder. Friar Roger Bacon, the "admirable doctor" of thirteenth-century England, a Franciscan monk who was finally thrown into prison for commerce with Satan, mixed saltpetre, sulphur and charcoal, and made "thunder and lightning" to his own great entertainment and his neighbors' terror. The worthy friar did not put gunpowder to more practical use than magic. It never occurred to him that, confined, the gases from a flash of powder would exert great force that could be applied to many purposes of war and peace. It was not long, however, before someone stripped away the supernatural, and in 1346 firearms are said to have made their appearance, at the battle of Crecy. Equally early, gunpowder must have been applied to blasting purposes.

From this humble and quaint monastic beginning, explosives have steadily increased in use and importance. Chemistry has made one improvement after another. Engineering has found a multiplicity of new uses. Hercoblasting is an example in point.

E. M. Symmes, an explosives chemist of the Hercules Powder Company, devised a new blasting method by which Friar Bacon might have performed real miracles for his gaping contemporaries. It is called Hercoblasting. And it consists of column-loading black blasting powder of special granulation in well-drill holes and firing with Cordeau-Bickford detonating fuse. Where this method is applicable, it has accomplished remarkable results at great savings.

Hercoblasting is only one of the new methods at the command of the explosives engineer. In the list of booklets on the right you will find a wealth of up-to-date, practical information that will be of value to you. Check the ones you want and mail the coupon. They are free.

HERCULES POWDER COMPANY
(INCORPORATED)

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The scientific research of the Hercules Powder Company in the use of blasting powder gave to the world the modern method of blasting known as Hercoblasting.

Free Booklets on Effective Blasting Methods

Tear out this coupon and mail it today

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Please send me, without charge, the publications checked:

- ☐ HERCULES GENERAL CATALOG
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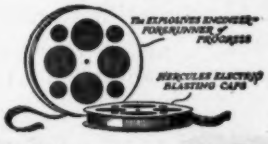
- ☐ HERCULES BLASTING MACHINES
- ☐ SAFETY in the USE of EXPLOSIVES
- ☐ EFFECT of CARTRIDGE DIAMETER on the EFFICIENCY of EXPLOSIVES
- ☐ HERCULES ELECTRIC BLASTING CAPS
- ☐ DEEP HOLE BLASTING
- ☐ SHOTFIRING by ELECTRICITY
- ☐ PREVENTING ACCIDENTS in MINES and QUARRIES
- ☐ A Free Sample Copy of *The Explosives Engineer* Magazine.

Educational Motion Pictures at Your Service



I should like to show your free film (or films):

☐ "THE EXPLOSIVES ENGINEER—FORERUNNER of PROGRESS" on.....
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(Date)

☐ "THE MANUFACTURE of ELECTRIC BLASTING CAPS" on.....
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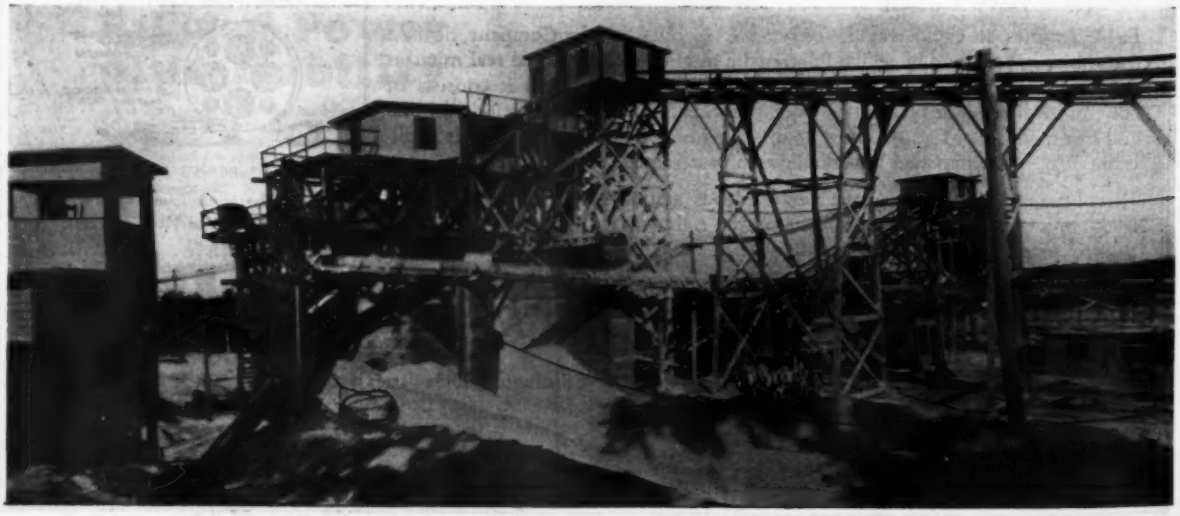
Incline from the Quarry to the Primary Crushers.

A View in the Soft Rock Quarry Showing the Two Diesel Shovels at Work.



Screening Plant and Tower for Operator of Storage Drag Scraper Bucket.